

IN THE CLAIMS:

The following is a complete listing of the claims, and replaces all earlier version and listings.

Claim1 (currently amended): An image process method comprising:

an input step of inputting color image data composed of a signal representing brightness and a signal representing chrominance;

a ~~smoothing~~ color noise reduction process step of performing a ~~smoothing~~ color noise reduction process on the signal representing chrominance, while not changing the signal representing brightness; and

a first judgment step of judging whether or not the color image data including the signal representing brightness represents an edge part on the basis of the signal representing brightness,

wherein said ~~smoothing~~ color noise reduction process step is not performed, if it is judged in said first judgment step that the color image data represents the edge part.

Claim 2 (previously presented): A method according to Claim 1, wherein said input step includes a conversion step of converting the color image data composed of plural color component signals into the signal representing brightness and the signal representing chrominance.

Claim 3 (canceled)

Claim 4 (previously presented): A method according to Claim 1, wherein, if it is judged in said first judgment step that the color image data represents the edge part, an emphasis process is performed to the signal representing brightness.

Claim 5 (previously presented): A method according to Claim 1, further comprising:

a second judgment step of judging whether or not the color image data including the signal representing chrominance represents a chrominance change part, on the basis of the signal representing chrominance,

wherein the smoothing process step is not performed, if it is judged in said second judgment step that the color image data represents the chrominance change part.

Claim 6 (previously presented): A method according to Claim 1, further comprising:

a third judgment step of judging whether or not the color image data represents a highlight part,

wherein the smoothing process step is not performed, if it is judged in said third judgment step that the color image data represents the highlight part.

Claim 7 (currently amended): A method according to Claim 1, wherein the ~~smoothing~~ color noise reduction process of said ~~smoothing~~ color noise reduction process step

is the process which is performed by using a filter symmetrical with respect to a notable pixel in upper and lower directions and right and left directions.

Claim 8 (currently amended): A method according to Claim 1, wherein the smoothing color noise reduction process of said smoothing color noise reduction process step is a filtering process which uses peripheral pixels of the input color image data being the notable pixel, and the color image data subjected to the smoothing process is used in a smoothing process for other color image data.

Claim 9 (currently amended): A method according to Claim 8, wherein the smoothing color noise reduction process of said smoothing color noised reduction process step is a process which uses a filter having high weight for a pixel area subjected to[[the]] a smoothing process prior to the notable pixel, and the data is digitally processed.

Claim 10 (previously presented): An image process method comprising:

- an input step of inputting a drawing instruction including at least a graphic image data part and a text image data part;
- a detection step of detecting the graphic image data part on the basis of the drawing instruction inputted in said input step; and
- a color noise reduction process step of performing a color noise reduction process on the graphic image data part.

Claim 11 (previously presented): A method according to Claim 10, wherein the color image data is composed of a signal representing brightness and a signal representing chrominance, and the noise reduction process is a smoothing process which is performed on the signal representing chrominance while not changing the signal representing brightness.

Claim 12 (previously presented): A method according to Claim 10, wherein, if the graphic image data part is detected in said detection step on the basis of the drawing instruction, the color noise reduction process is not performed.

Claim 13 (previously presented): An image process method which performs a filtering process by a filter having a size and shape on a color image, composed of color image data and peripheral color image data, according to the color image data, comprising:

a detection step of detecting a non-continuous point in the color image by using the color image data and peripheral color image data; and

a filter change step of changing a filter of a different size and shape in accordance with the detected result in said detection step.

Claim 14 (previously presented): A method according to Claim 13, wherein the filter used in the filtering process is a filter for referring to a notable line including a notable pixel and lines before the notable line.

Claim 15 (original): A method according to Claim 13, further comprising:

- a drawing instruction group input step of inputting a group of drawing instructions indicating an output image;
- an image data generation step of generating output image data representing the output image, on the basis of the group of the drawing instructions;
- a division step of dividing the same image on the basis of the plural drawing instructions; and
- a division image input step of inputting the divided plural images.

Claim 16 (currently amended): An image process apparatus comprising:

- input means for inputting color image data composed of a signal representing brightness and a signal representing chrominance;
- ~~smoothing~~ color noise reduction process means for performing a ~~smoothing~~ color noise reduction process on the signal representing chrominance, while holding the signal representing brightness;
- first judgment means for judging whether or not the color image data including the signal representing brightness represents an edge part on the basis of the signal representing brightness,
- wherein said ~~smoothing~~ color noise reduction process means does not perform the smoothing process, if it is judged by said first judgment means that the color image data represents the edge part; and

image formation means for forming an image on the basis of the signal representing brightness and the signal representing chrominance subjected to the smoothing color noise reduction process.

Claim 17 (previously presented): An image process apparatus comprising:

input means for inputting a drawing instruction including at least a graphic image data part and a text image data part;

detection means for detecting the graphic image data part on the basis of the drawing instruction;

color noise reduction process means for performing a color noise reduction process on the graphic image data part; and

image formation means for forming an image on the basis of the text image data part and the graphic image data part subject to the color noise reduction process performed by said color noise reduction process means.

Claim 18 (previously presented): An image process apparatus which

performs a filtering process by a filter having a size and shape to a color image, composed of color image data and peripheral color image data, according to the color image data, comprising:

detection means for detecting a non-continuous point in the color image by using the color image data and peripheral color image data;

filter change means for changing a filter of a different size and shape in accordance with the detected result; and

image formation means for forming an image on the basis of the color image subjected to the filtering process.

Claim 19 (currently amended): A computer-readable recording medium which records a program to cause a computer to execute:

code for an input procedure for inputting color image data composed of a signal representing brightness and a signal representing chrominance;

code for a ~~smoothing~~ color noise reduction process procedure for performing a ~~smoothing~~ color noise reduction process on the signal representing chrominance, while holding the signal representing brightness; and

code for a first judgment step of judging whether or not the color image data including the signal representing brightness represents an edge part on the basis of the signal representing brightness,

wherein ~~said code for a smoothing~~ color noise reduction process ~~step procedure~~ is not performed, if it is judged in execution of said code for a first judgment step that the color image data represents the edge part.

Claim 20 (previously presented): A computer-readable recording medium which records a program to cause a computer to execute:

code for an input step of inputting a drawing instruction including at least a graphic image data part and a text image data part;

code for a detection step of detecting the graphic image data part on the basis of the drawing instruction; and

code for a color noise reduction process step of performing a color noise reduction process on the graphic image data part.

Claim 21 (currently amended): A computer-readable recording medium which records a program to cause a computer to execute an image process method for performing a filtering process by a filter having a size and shape to a color image, composed of color image data and peripheral color image data, according to the color image data, comprising to color image data, said program comprising:

code for a detection step of detecting a non-continuous point in the color image by using the color image data and peripheral color image data; and

code for a filter change for step of changing a filter of a different size and shape in accordance with the detected result ~~by said code for~~ obtained in the detection step.

Claim 22 (previously presented): An image process method comprising:

a calculation step of calculating a feature quantity of an input image composed of input image data by using a histogram concerning brightness;

a color noise reduction process step of performing a color noise reduction process on the input image data; and

an image correction step of performing a correction process on the input image subjected to the color noise reduction process in said color noise reduction process step, on the basis of the calculated feature quantity calculated in said calculation step.



Claim 23 (previously presented): A method according to Claim 22, wherein the input image data includes a component representing brightness and a component representing chrominance, and

wherein, in said color noise reduction process step, a smoothing process is performed on the component representing chrominance.

Claim 24 (previously presented): A method according to Claim 22, further comprising an enlargement process step of performing an enlargement process on the corrected input image.

Claims 25 and 26 (canceled)

Claim 27 (original): A method according to Claim 22, wherein, in said image correction step, brightness of the input image is corrected.

Claim 28 (original): A method according to Claim 22, wherein, in said image correction step, saturation of the input image is corrected.

Claim 29 (previously presented): A method according to Claim 23, wherein, in said image correction step, the component representing brightness and the component representing chrominance are corrected.

Claim 30 (original): A method according to Claim 22, wherein, in said calculation step, the feature quantity is calculated on the basis of the input image subjected to the color noise reduction process.

Claim 31 (original): A method according to Claim 22, wherein the color noise reduction process is performed on the basis of a user's manual instruction.

Claim 32 (original): An image process method comprising:  
a color noise reduction process step of performing a color noise reduction process for input digital image data; and  
a scaling step of scaling an image size,  
wherein the order of said color noise reduction process step and said scaling step is controlled in accordance with a scaling rate or a scaling method.

Claim 33 (previously presented): An image process apparatus comprising:  
calculation means for calculating a feature quantity of an input image composed of input image data by using a histogram concerning brightness;  
color noise reduction process means for performing a color noise reduction process on the input image data; and  
image correction means for performing a correction process on the input image subjected to the color noise reduction process by said color noise reduction process means, on the basis of the calculated feature quantity calculated by said calculation means.

Claim 34 (previously presented): An apparatus according to Claim 33, further comprising image formation means for forming an image on the basis of the input image data subjected to the correction process.

Claim 35 (previously presented): A recording medium which records a computer readable program to realize an image process apparatus comprising:

code for a calculation step of calculating a feature quantity of an input image composed of input image data by using a histogram concerning brightness;

code for a color noise reduction process step of performing a color noise reduction process on the input image data; and

code for an image correction step of performing a correction process on the input image subjected to the color noise reduction process in said color noise reduction process step, on the basis of the calculated feature quantity calculated in said calculation step.

Claim 36 (previously presented): An image process method comprising:

a calculation step of calculating a feature quantity of an input image composed of input image data by using a histogram concerning brightness;

a color noise reduction process step of performing a color noise reduction process on the input image data;

an image correction step of performing a correction process on the input image subjected to the color noise reduction process in said color noise reduction

process step, on the basis of the calculated feature quantity calculated in said calculation step; and

a scaling step of scaling an image size of the input image,  
wherein the order of said scaling step and said color noise reduction process step is controlled in accordance with a scaling rate.

Claim 37 (previously presented): An image process method comprising:

a calculation step of calculating a feature quantity of an input image composed of input image data by using a histogram concerning brightness;

a color noise reduction process step of performing a color noise reduction process on the input image data;

an image correction step of performing a correction process on the input image subjected to the color noise reduction process in said color noise reduction process step, on the basis of the calculated feature quantity calculated in said calculation step; and

a reduction step of reducing an image size of the input image,  
wherein the order of said reduction step and said color noise reduction process step is controlled in accordance with a reduction method.

Claim 38 (new) An image process method comprising:

an input step of inputting color image data composed of a signal representing brightness and a signal representing chrominance;

a color noise reduction process step of performing a color noise reduction process on the signal representing chrominance, while not changing the signal representing brightness;

a first judgment step of judging whether or not the color image data including the signal representing brightness represents an edge part on the basis of the signal representing brightness,

wherein said color noise reduction process step is not performed, if it is judged in said first judgment step that the color image data represents the edge part;  
and

a third judgment step of judging whether or not the color image data represents a highlight part,

wherein the smoothing process step is not performed, if it is judged in said third judgment step that the color image data represents the highlight part.

Claim 39 (new) An image process apparatus comprising:

input means for inputting color image data composed of a signal representing brightness and a signal representing chrominance;

color noise reduction process means for performing a color noise reduction process on the signal representing chrominance, while not changing the signal representing brightness;

first judgment means for judging whether or not the color image data including the signal representing brightness represents an edge part on the basis of the signal representing brightness,

wherein the color noise reduction process step is not performed, if it is judged by said first judgment means that the color image data represents the edge part;  
and

third judgment means for judging whether or not the color image data represents a highlight part,

wherein the smoothing process step is not performed, if it is judged by said third judgment means that the color image data represents the highlight part.

Claim 40 (new) A computer-readable recording medium storing executable code for causing an apparatus to perform an image processing method, said code comprising:

code for an input step of inputting color image data composed of a signal representing brightness and a signal representing chrominance;

code for a color noise reduction process step of performing a color noise reduction process on the signal representing chrominance, while not changing the signal representing brightness;

code for a first judgment step of judging whether or not the color image data including the signal representing brightness represents an edge part on the basis of the signal representing brightness,

wherein the color noise reduction process step is not performed, if it is judged in the first judgment step that the color image data represents the edge part; and

code for a third judgment step of judging whether or not the color image data represents a highlight part,

wherein the smoothing process step is not performed, if it is judged in the third judgment step that the color image data represents the highlight part.